

What is claimed is:

1. A purification process for manufacturing a ~~high~~ pure acarbose uses alcohol for precipitation and separation, a ~~strongly~~ cation exchange chromatography and an immobilized enzyme affinity chromatography for purification and purifying an acarbose-containing fermentation broth to get a high pure acarbose.
2. The purification process of claim 1, wherein the ~~strongly~~ cation exchange chromatography uses a styrene 10 divinylbenzene copolymer without methoxymethylmethacrylamide to be a resin matrix.
3. The purification process of claim 1, wherein the enzyme of the immobilized enzyme affinity chromatography uses  $\alpha$ -amyloglucosidase(  $\alpha$  -glucoamylase).
- 15 4. The purification process of claim 1, wherein the ~~strongly~~ cation exchange chromatography uses a cation exchange

Claim 1  
103  
US 4,767,857  
(C07, 5,989,882)  
(C07, 3-455-8)

resin containing 20-200 mg sugars/mL resin.

5. The purification process of claim 2, wherein further comprising a step after the strongly cation exchange

chromatography uses a solvent, 0~2.0N ammonia solution,

5 to manufacture a high pure acarbose.

6. The purification process as claim 3, wherein further comprising a step after the immobilized enzyme affinity

chromatography uses a solvent, 55~75°C distilled water, to

manufacture a high pure acarbose.

10 7. The purification process as claim 1, wherein the purity of

~~high~~ pure acarbose is large than 95% (wt/wt) used to treat

diabetes.

8. A purification process for purifying the acarbose comprising the steps of:

15 eliminating myselium from an acarbose-containing

fermentation broth by centrifugation;

- concentrating filtrate of the acarbose-containing  
fermentation broth to ~~be consistency by a concentratation~~  
~~system;~~
- adding adequate ethyl alcohol to the consistency and  
5 blending to be a solution;  
taking an upper liquid from the solution by centrifugating;  
concentrating the upper liquid ~~to be a consistency by the~~  
~~concentrating system;~~  
putting the consistency into ethyl alcohol to get ~~a~~  
10 ~~consistency liquid;~~  
taking a sediment from the consistency liquid by  
centrifugating and solving the sediment by water to get an  
impure acarbose solution;  
blending a strongly cation exchange resin with the  
15 acarbose solution to get a resin;  
using sodium chloride solution to eliminate an impurity in

the resin;

using ammonia solution to eliminate an impurity in the  
resin; and

solving the resin with ammonia solution to get a high pure

5 acarbose.

9. The purification process as claim 8, wherein the  
eliminating myselium from acarbose-containing  
fermentation broth step could use a filter to replace  
centrifugating.

10 10. The purification process as claim 8, wherein the purity of  
high pure acarbose is 60%(wt/wt).

11. A purification process for manufacturing a high pure  
acarbose comprising the steps of:

adjusting pH value of an impure acarbose;

15 adding an cation exchange resin into the impure acarbose  
to get a solution;

- blending the solution and taking an upper liquid;
- adding a strong cation exchange resin into the upper liquid
- to get a mixing solution;
- mixing and shaking the mixing solution to make the strong
- 5 cation exchange resin absorbing acarbose;
- using sodium chloride solution to eliminate an impurity in
- the acarbose; and
- using ammonia solution to elute the acarbose to get a high
- pure acarbose.
- 10 12. The purification process as claim 12, wherein after the
- adjusting pH value step adds a cation exchange resin
- containing 250 mg sugars/g resin.
13. The purification process as claim 12, wherein after taking
- the upper liquid adds a strong cation exchange resin
- 15 containing 80 mg sugars/mL.
14. The purification process as claim 12, wherein the purity of

high pure acarbose is up 78%.

15. A purification process for manufacturing a high pure acarbose comprising the steps of:

adjusting pH value of ~~an upper liquid from an impure~~

5 acarbose mixing a strong cation exchange resin;

passing the upper liquid through a strong cation exchange resin column ;

washing the strong cation exchange resin in the column by deionized water till the absorbance of strong cation exchange

10 resin being zero or steady;

getting an impure acarbose by using ammonia solution to elute the strong cation exchange resin;

concentrating the acarbose-containing fractions to be a volume by a concenteration system; and

15 using alcohol for extracting the impure acarbose to get a high pure acarbose.

16. The purification process as claim ~~16~~, wherein the flow velocity of passing the strong cation exchange resin column is 2.5 mL/min.

17. The purification process of claim 16, wherein the ammonia solution gradient of ammonia solution for eluting the impure acarbose is 0.5~1.5N.

18. The purification process as claim 16, wherein the purity of high pure acarbose is up 85%.

19. A purification process for manufacturing a high pure acarbose comprising the steps of:

?? ~~solving~~ a powder of acarbose, which the purity is

83%~87%, by distilled water to be a solution;

adjusting pH value of the solution ;

passing the solution through  $\alpha$ -amyloglucosidase column;

15        washing the  $\alpha$ -amyloglucosidase column by using a times

deionized water volume as the volume of the  $\alpha$

-amyloglucosidase column;

eluting an acarbose from the  $\alpha$  -amyloglucosidase column by distilled water;

concentrating the acarbose-containing fractions to be a

5 volume by a concenteration system; and

using alcohol for precipitating the impure acarbose to get a high pure acarbose.

20. The purification process of claim 20, wherein the flow velocity of passing the  $\alpha$  -amyloglucosidase column is 1.5  
10 mL/min.

21. The purification process of claim 20, wherein the washing the  $\alpha$  -amyloglucosidase column step uses two times deionized water volume as the volume of the  $\alpha$  -amyloglucosidase column.

15 22. The purification process of claim 20, wherein washing the  $\alpha$  -amyloglucosidase column by deionized water step

changes the flow velocity of passing the  $\alpha$ -amyloglucosidase column being 210nm till the absorbance of the  $\alpha$ -amyloglucosidase is steady.

23. The purification process of claim 20, wherein solving an

5 impure acarbose from the  $\alpha$ -amyloglucosidase column by distilled water, 65°C.

24. The purification process of claim 20, wherein the purity of

the high pure acarbose is up 95%.